

Ordering number:EN3149

PNP/NPN Epitaxial Planar Silicon Transistors



# 2SB1449/2SD2198

## 50V/5A Switching Applications

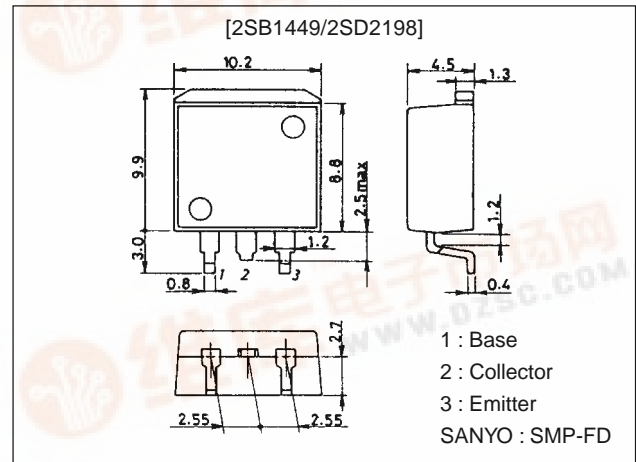
### Features

- Surface mount type device making the following possible.
  - Reduction in the number of manufacturing processes for 2SB1449/2SD2198-applied equipment.
  - High density surface mount applications.
  - Small size of 2SB1449/2SD2198-applied equipment.
- Low collector-to-emitter saturation voltage.

### Package Dimensions

unit:mm

2069B



( ) : 2SB1449

### Specifications

#### Absolute Maximum Ratings at Ta = 25°C

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	$V_{CB0}$		(-)-60	V
Collector-to-Emitter Voltage	$V_{CEO}$		(-)-50	V
Emitter-to-Base Voltage	$V_{EBO}$		(-)-6	V
Collector Current	$I_C$		(-)-5	A
Collector Current (Pulse)	$I_{CP}$		(-)-9	A
Collector Dissipation	$P_C$		1.65	W
		$T_c=25^\circ\text{C}$	30	W
Junction Temperature	$T_j$		150	$^\circ\text{C}$
Storage Temperature	$T_{stg}$		-55 to +150	$^\circ\text{C}$

#### Electrical Characteristics at Ta = 25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	$I_{CBO}$	$V_{CB} = (-)40\text{V}, I_E = 0$			(-)-0.1	mA
Emitter Cutoff Current	$I_{EBO}$	$V_{EB} = (-)4\text{V}, I_C = 0$			(-)-0.1	mA
DC Current Gain	$h_{FE1}$	$V_{CE} = (-)2\text{V}, I_C = (-)1\text{A}$	70*		280*	
	$h_{FE2}$	$V_{CE} = (-)2\text{V}, I_C = (-)3\text{A}$	30			
Gain-Bandwidth Product	$f_T$	$V_{CE} = (-)5\text{V}, I_C = (-)1\text{A}$		30		MHz
Output Capacitance	$C_{ob}$	$V_{CB} = (-)10\text{V}, f = 1\text{MHz}$		100		pF
				(160)		pF

\* : The 2SB1449/2SD2198 are classified by 1A  $h_{FE}$  as follows :

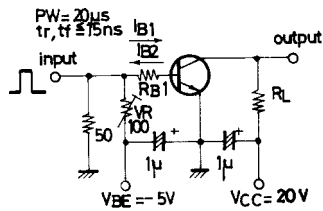
70	Q	140	100	R	200	140	S	280
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## 2SB1449/2SD2198

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=(-)3A, I_B=(-)0.3A$			(-) $0.4$	V
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C=(-)1mA, I_E=0$	(-) $60$			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C=(-)1mA, R_{BE}=\infty$	(-) $50$			V
Emitter-to-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E=(-)1mA, I_C=0$	(-) $6$			V
Turn-ON Time	$t_{on}$	See specified test circuit.		0.1		$\mu s$
Storage Time	$t_{stg}$	See specified test circuit.		(0.7)		$\mu s$
				1.4		$\mu s$
Fall Time	$t_f$	See specified test circuit.		0.2		$\mu s$

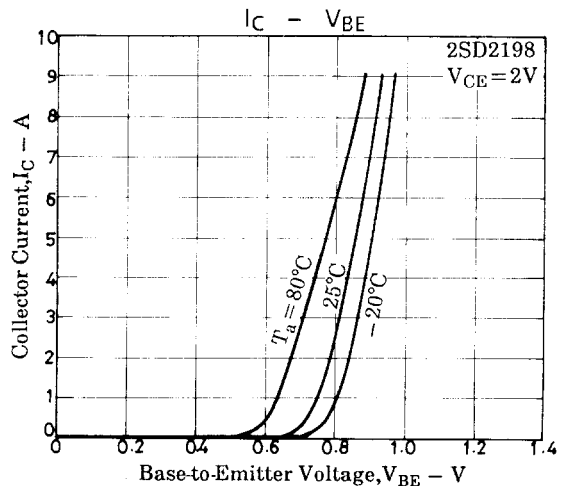
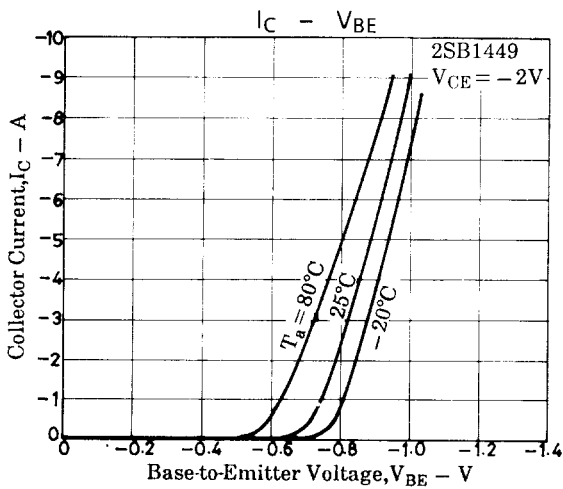
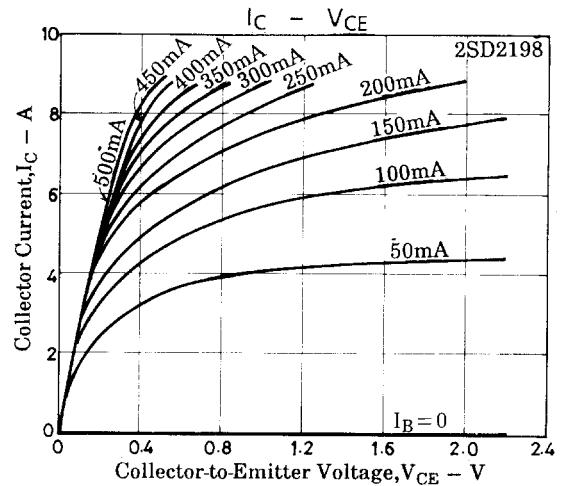
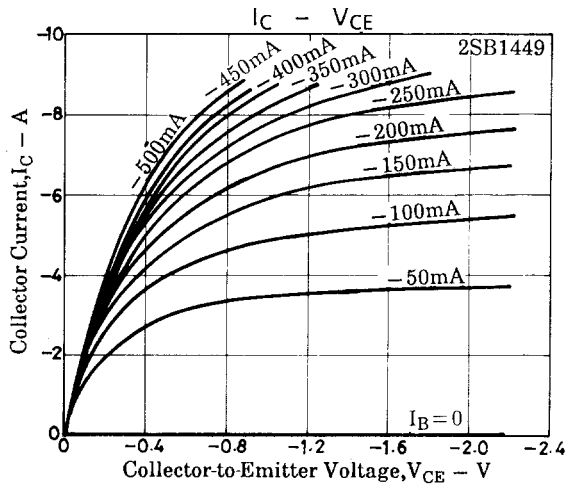
### Switching Time Test Circuit



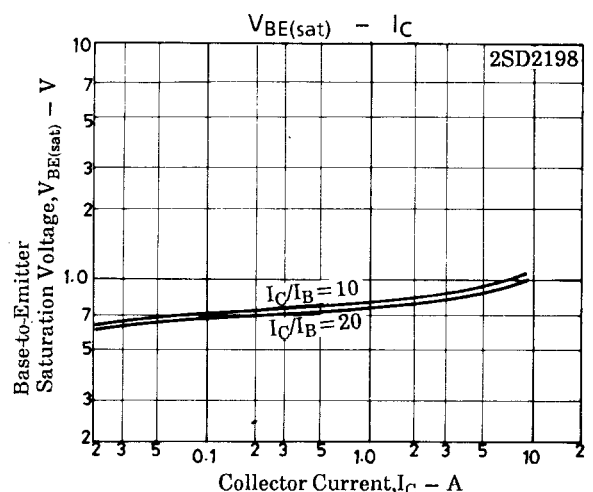
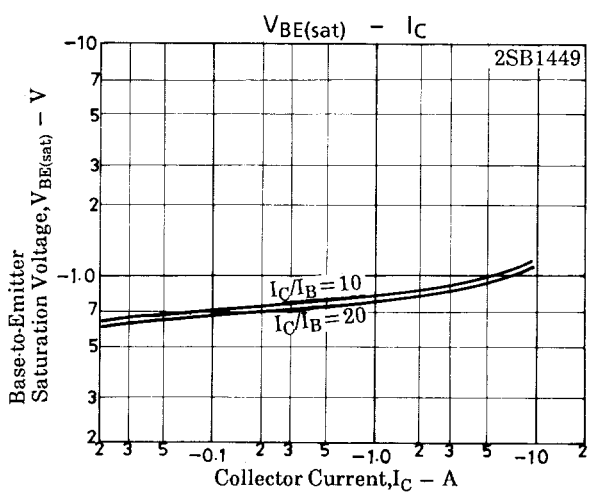
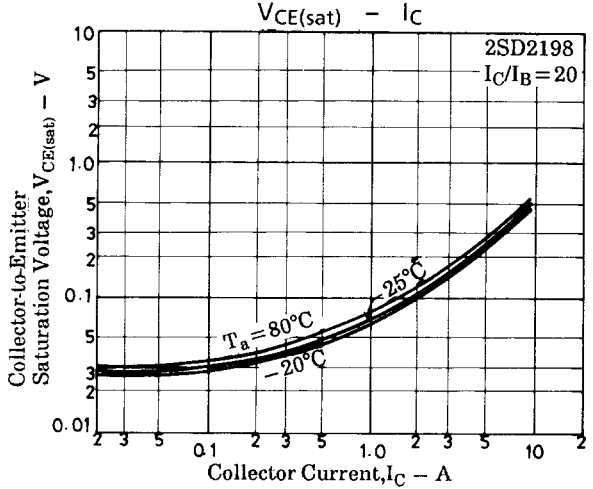
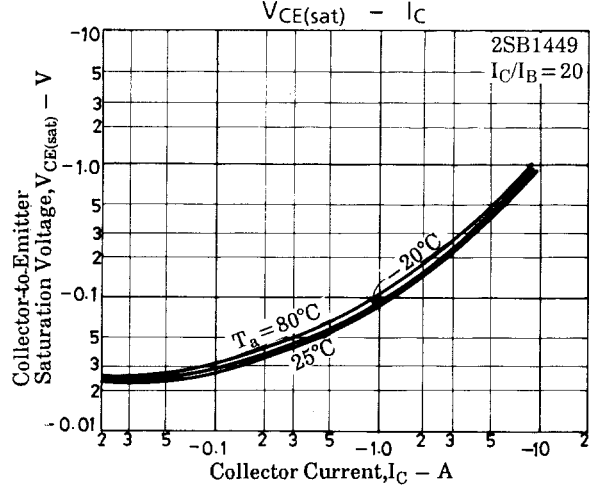
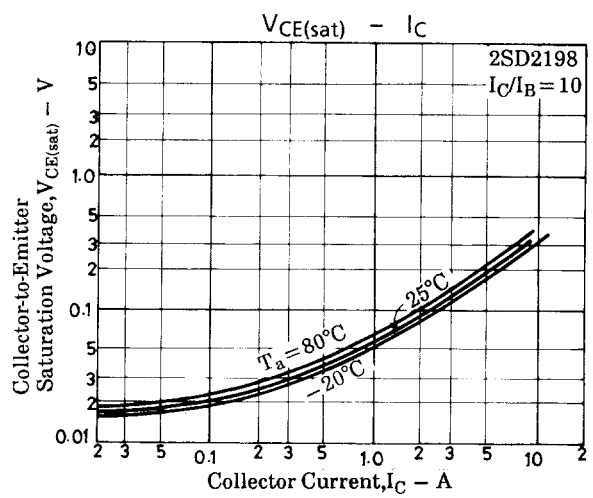
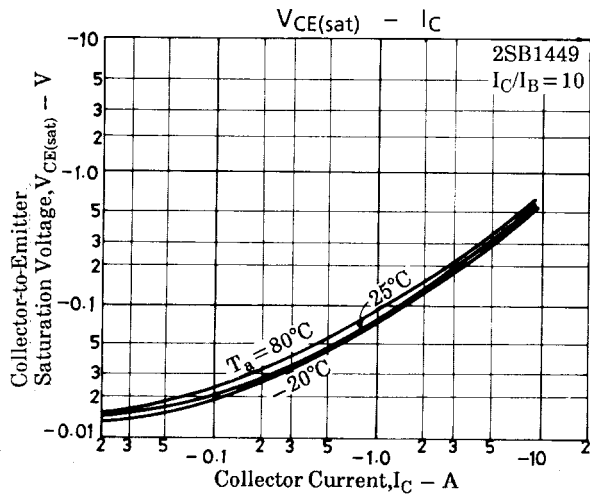
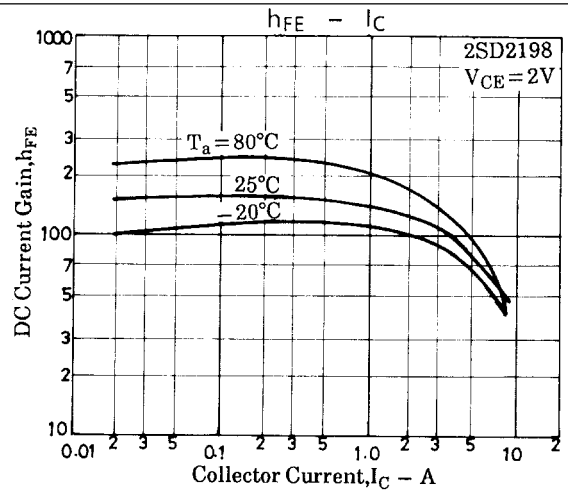
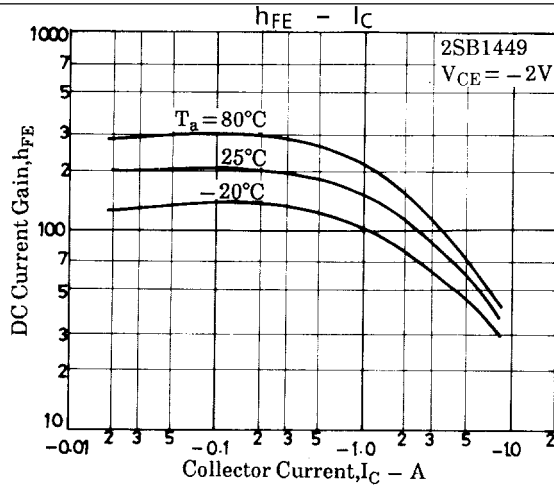
$$10 I_{B1} = -10 I_{B2} = I_C = 2A$$

For PNP, the polarity is reversed.

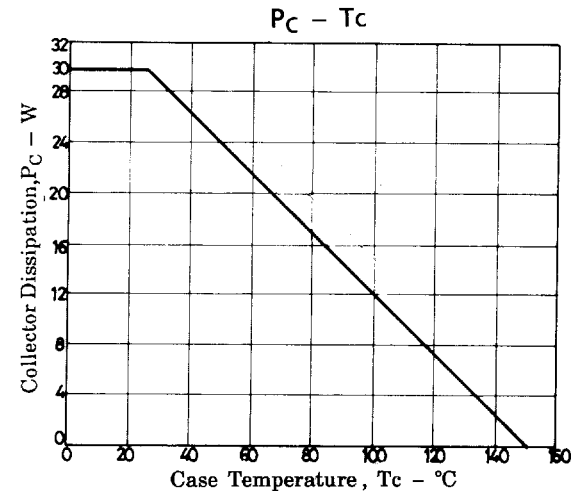
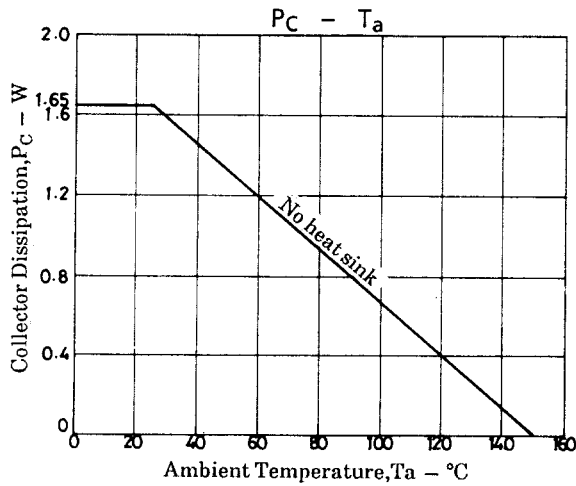
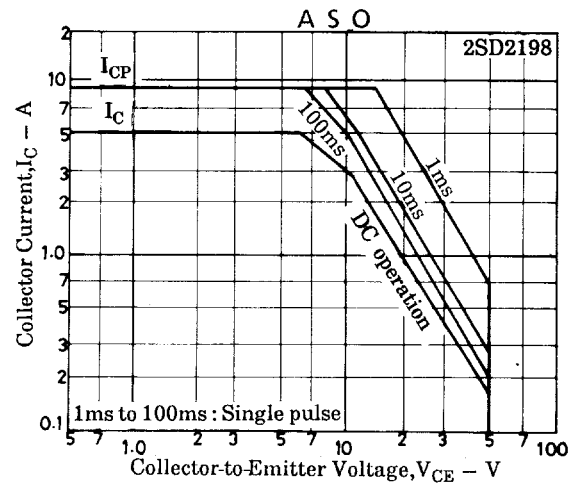
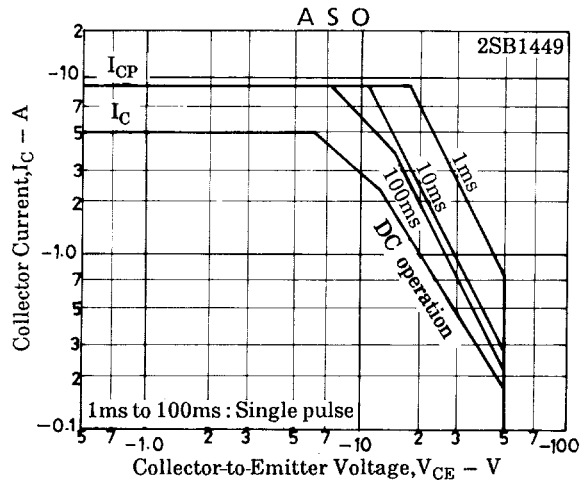
Unit (resistance :  $\Omega$ , capacitance : F)



## 2SB1449/2SD2198



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